California Interregional State Highways

Major Planning Considerations, Trends and Implications

Introduction

The California State Highway System (SHS) is comprised of over 15,400 miles (51,000 lane miles) of roadway and carries over 185 billion vehicle miles of travel (VMT) each year. The state highway system serves the State's heavily traveled rural and urban corridors, connects the communities and regions of the State and serves the State's economy by connecting centers of commerce, industry, agriculture, natural resource wealth, and recreation. The California Department of Transportation (Caltrans) has the statutory responsibility for operations, maintenance, design, construction and long-range planning of the SHS. Caltrans establishes standards and policies to maintain the system and administers the State Highway Operations and Protection Program (SHOPP) for rehabilitation and operational improvements of the system. Caltrans conducts long-range system planning in both rural and urbanized areas to identify future highway improvements and strategies, recommend prioritized improvements for funding into local and regional plans, and provide the sound technical basis for informed discussions and decision-making.

I. Major Interregional System Elements

The state highway system serves a diverse range of needs for the interregional movement of people and goods between rural and highly urbanized areas. While all state routes are important, the Interstate system, Interregional Road System (IRRS) routes, and other major freeway trade corridors form a strong transportation network that is most critical to interregional mobility and connectivity statewide. Together, these routes carry over 80 percent of the total annual SHS VMT. Strategies to optimize the use of the system's existing capacity through better system management, integration of new technology, completing the gaps on the high-occupancy vehicle (HOV) system and completing the key underdeveloped interregional routes would help achieve maximum return from our investment and meet the State's climate goals.

For Phase 1 development of the California Interregional Blueprint (CIB), Caltrans provides a progress status on each of the Focus Route included in the 1998 Interregional Transportation Strategic Plan (ITSP). The HOV System network is also included to emphasize the need to close gaps for system continuity. These system plans are the most readily available information for illustration purposes and provide a conceptual framework for the CIB. Ultimately, the plan is to identify future highway improvements and gaps on the IRRS *(Refer to Map – Interregional Road System)*, with special emphasis on the non-urbanized areas. Priority improvements, specific to goods movement, are noted separately in the Goods Movement Action Plan section of the CIB.

Interstate System

The designated Interstate system is the backbone of the state's transportation network for interregional, interstate and international goods movement, access to airports, air cargo terminals, and other major gateways in the urbanized area. The Interstate system is the only "completed freeway system" in California in terms of continuous high facility standards. The Interstate system is less than 18 percent of all state highway miles, however, it carries over half of all VMT annually (over 80 billion VMT) and over half of all VMT in the urbanized and metropolitan areas. The State's large metropolitan centers in Southern California and the Bay Area in Northern California rely heavily on the Interstate system for interregional and regional

mobility. In rural and nonurbanized areas, the Interstate system primarily serves critical interregional goods movement needs and recreational travel.

Interregional Road System

The IRRS was first identified in statute in 1989 as part of the Blueprint Legislation. The IRRS is defined as a series of interregional state highway routes, outside the urbanized areas, that provides access to, and links between, the State's economic centers, major recreation areas, and urban and rural regions. This is simply a subset of the existing state highway routes and part of the Freeway and Expressway (F&E) System. The IRRS was conceived as part of the larger effort to address the critical transportation system funding and development needs of the State. Like most of new programs created by Legislation, the implementation is dependent on increases in state transportation revenues.

The passage of Blueprint Legislation (1989) and Senate Bill 45 (1997) made significant changes to the priorities and processes for programming and expenditure of state transportation funds. The funding formula for the State's interregional program is 25 percent and the regional share is 75 percent. The intent was for the State to be responsible for the interregional travel in the non-urbanized areas on the IRRS routes. Regional and local agencies are responsible for regional and sub-regional travel, and given the flexibility in identifying projects and system improvements to address congestion in their areas.

The term "High Emphasis Routes" was first coined in the 1990 IRRS Plan. This Plan was required in the Blueprint Legislation, but was deleted under SB 45. The High Emphasis Routes are characterized by Caltrans as the most critical IRRS routes identified in the 1990 Plan as the State's priority for programming and candidates to upgrade to freeway/expressway standards. Some Interstate routes are included as High Emphasis to highlight their critical importance to the interregional travel and the state as a whole; but they are not a priority for programming.

The term "Focus Route" is a phrase specific to the Caltrans' Interregional Transportation Strategic Plan (ITSP). The ITSP superceded the 1990 IRRS Plan and was developed in response to SB 45 to guide the investments in the State's Interregional Improvement Program (IIP). Focus Routes are a subset of the High Emphasis Routes and represent the ten IRRS corridors that should be the highest priority for upgrade to freeway and expressway standards in a 20-year period. When completed, the Focus Routes will connect all urban areas (including high-growth urbanizing areas), geographic goods movement gateways, and link rural and small urban areas to this trunk system. The Focus Routes can also be managed through a system management approach based on performance measures. *(Refer to ITSP Fact Sheet and Focus Route Development Strategy Map).*

Urban growth and development in California in the past 30 years has been directly along the Interstate System and Focus Routes (*Refer to Map – Designation Trend of Urbanized Areas on Transportation Paths).* Better management of the Interstate system and completion of the Focus Routes are central to both supporting interregional travel to and through urbanized areas and for rural mobility.

II. Major Statewide Initiatives/Plan

Importance of Corridor System Management Plans (CSMPs) for California's Mobility

Caltrans, in collaboration with regional and local partners, relies on the development of the CSMPs to manage corridor mobility and operations now and in the future. The CSMPs are based upon the concepts in Caltrans' Transportation Management System (TMS) Master Plan that was required by the California State Legislature in 2004. The TMS Master Plan is the foundation of the transportation component of the Governor's Strategic Growth Plan (SGP). This system management approach will restore productivity to the State's transportation system, improve corridor throughput, enhance travel time reliability across all corridor elements, and support economic growth.

The TMS Master Plan identifies three principal elements that will help restore productivity. These are: traffic control (such as ramp meters and improved signal timing on local arterials), incident management, and traveler information. These elements must be built on a strong foundation of detection in order to measure freeway performance. Aggressive deployment of these TMS elements could, on the freeway system alone, increase productivity by 20 percent, reduce projected congestion by 20 percent, and improve travel time reliability by 10 percent.

The CSMPs support and complement meeting the goals of the California Regional Blueprint efforts, compliance with Assembly Bill (AB) 32 and Senate Bill (SB) 375 to reduce greenhouse gas emissions, and the Smart Mobility Framework *(Refer to Smart Mobility Framework Fact Sheet).*

2009 High Occupancy Vehicle (HOV)/Express Lane Business Plan

An important element of efficiently operating California's highways is the State's HOV and express lanes - also known as high-occupancy tolling (HOT) or managed-lane system. The California HOV/Express Lane Business Plan guides the current and future development and operation of HOV and express lanes throughout the State. Caltrans Division of Traffic Operations takes the lead in implementing the business plan but it is developed in partnership with the regional transportation planning agencies, the California Highway Patrol and the Federal Highway Administration.

Currently, California has over 1,500 lane miles of HOV lanes, including three express lanes operating or under construction. Additionally, due to state and federal legislation and funding incentives, over 1,300 additional lane miles of HOV or express lanes are programmed or proposed, including a regional HOT lane network. *(Refer to Maps – HOV Lane System for Northern and Southern California).* By adjusting HOV lane operations (occupancy minimums and access design) and introducing tolling ("Express Lanes") the state and regional partners can actually manage congestion. The HOV/Express Lane Business Plan lays out a course of action during 2009-2011 for Caltrans and its partners to easily implement more flexible and effective system management strategies for HOV and Express lanes.

2009 Ten-Year SHOPP Plan

Caltrans' 2009 Ten-Year SHOPP identifies the needs to maintain and preserve the state highway system (2010 to 2020). The SHOPP Plan identifies specific performance measures and includes a cost estimate for the first five years of the plan. Capital improvements programmed in the SHOPP are limited to maintenance, safety improvements, and rehabilitation of the State highways and bridges, which do not add capacity to the system. Eligible SHOPP projects are grouped into eight categories: emergency response, collision reduction, mandates, bridge preservation, roadway preservation, mobility, roadside preservation and facilities.

The SHOPP is funded from the State Highway Account (SHA), receiving money through excise tax on gasoline and diesel fuel. Projected SHA funding available for the SHOPP is about $1.5 billion per year, which represent about 24 percent of the estimated annual need. Since funding is insufficient to preserve and maintain the system, Caltrans will have to focus resources on the most critical categories of projects in the SHOPP. In the absence of new revenue sources, the condition of the transportation system will continue to deteriorate over the next ten years.

Caltrans has also identified 20 high-priority future SHOPP projects that involve a complex environmental, or project selection process, or require more than four years lead time for delivery of the construction contract documents. To achieve the goals identified in the Ten-Year SHOPP Plan, Caltrans will have to start the environmental review process prior to programming these projects. The intent is to propose these projects for programming at the earliest opportunity.

Sources:
Statewide Corridor System Management Plan
http://www.corridormobility.org

Transportation Management System Master Plan
http://www.dot.ca.gov/hq/traffops/sysmgtpl/reports/MasterPlan.pdf

California High Occupancy Vehicle/Express Lane Business Plan
http://www.dot.ca.gov/hq/traffops/systemops/hov/Express_Lane/

SHOPP Program
http://www.dot.ca.gov/hq/transprog/shopp.htm

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California State Highways

San Francisco and Vicinity

see inset

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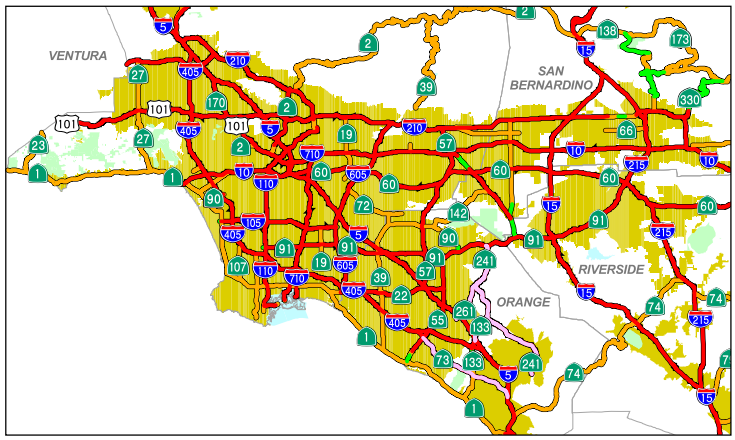
Map Legend

- County Boundary
- State/National Park
- Major Water Feature
- Urbanized Area

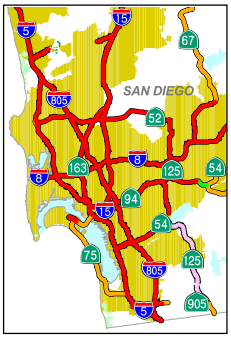
California State Highway System

- Freeway (Full Access Control)
- Expressway (Limited Access Control)
- Conventional (No Access Control)
- Toll Road, Freeway

- Interstate Route
- U.S. Highway Route
- California State Route



Los Angeles and Vicinity



San Diego

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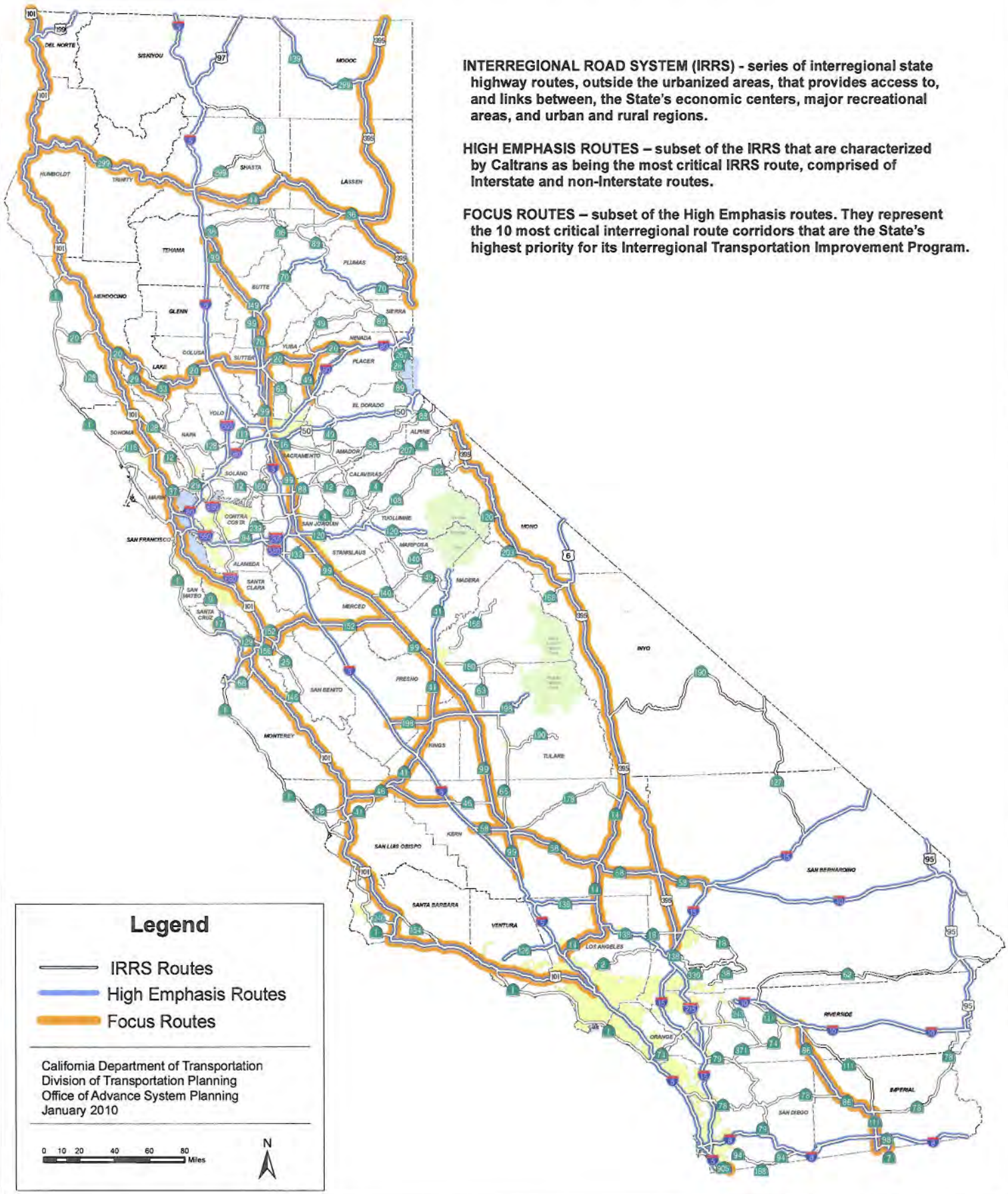
January 2010

Interregional Road System

(Streets and Highway Code, Section 164.10 - 164.20)



INTERREGIONAL ROAD SYSTEM (IRRS) - series of interregional state highway routes, outside the urbanized areas, that provides access to, and links between, the State's economic centers, major recreational areas, and urban and rural regions.

HIGH EMPHASIS ROUTES – subset of the IRRS that are characterized by Caltrans as being the most critical IRRS route, comprised of Interstate and non-Interstate routes.

FOCUS ROUTES – subset of the High Emphasis routes. They represent the 10 most critical interregional route corridors that are the State's highest priority for its Interregional Transportation Improvement Program.

Legend

IRRS Routes

High Emphasis Routes

Focus Routes

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0 10 20 40 60 80 Miles

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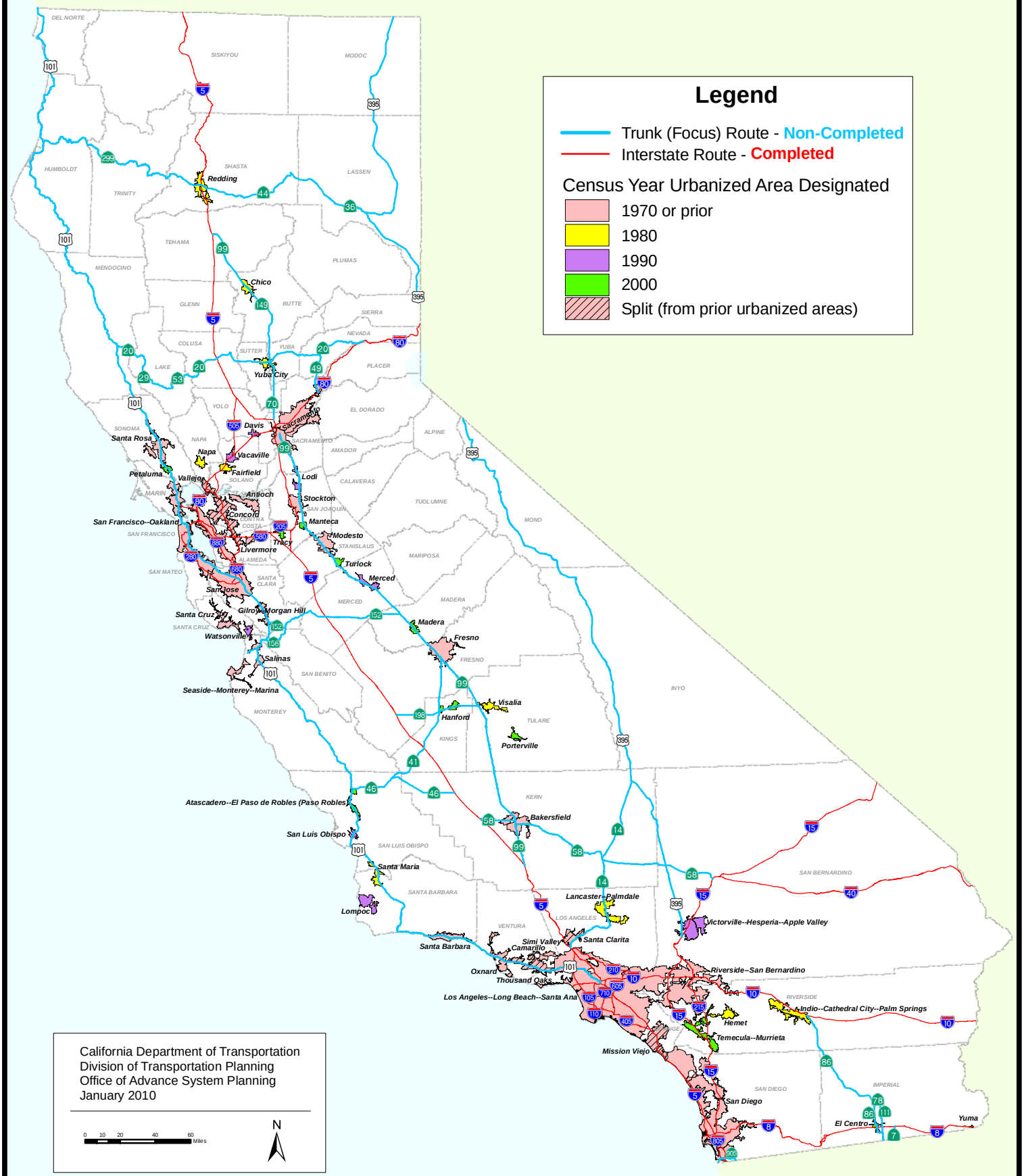
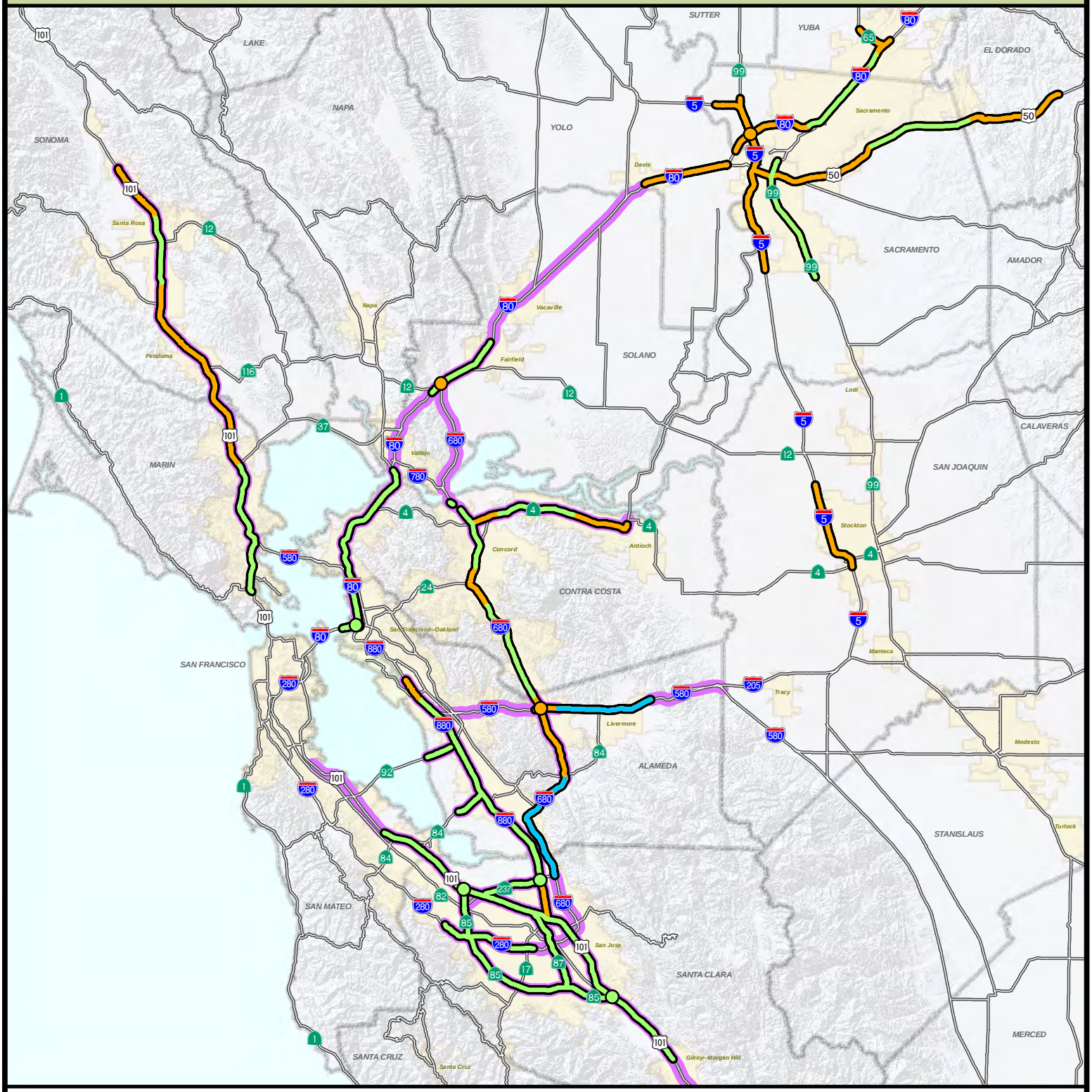
Designation Trends of Urbanized Areas on Transportation Paths



High-Occupancy Vehicle Lanes (HOV)/Express Lanes
Northern California Region



HOV/Express Lanes Status

- Direct HOV/HOT Connector
- HOV - Existing and Under Construction
- HOV - Proposed
- Express Lanes - Existing and Under Construction
- Express Lanes - Proposed

Legend

- Urbanized Area
- County Boundary

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0 2 4 8 12 16 20 Miles

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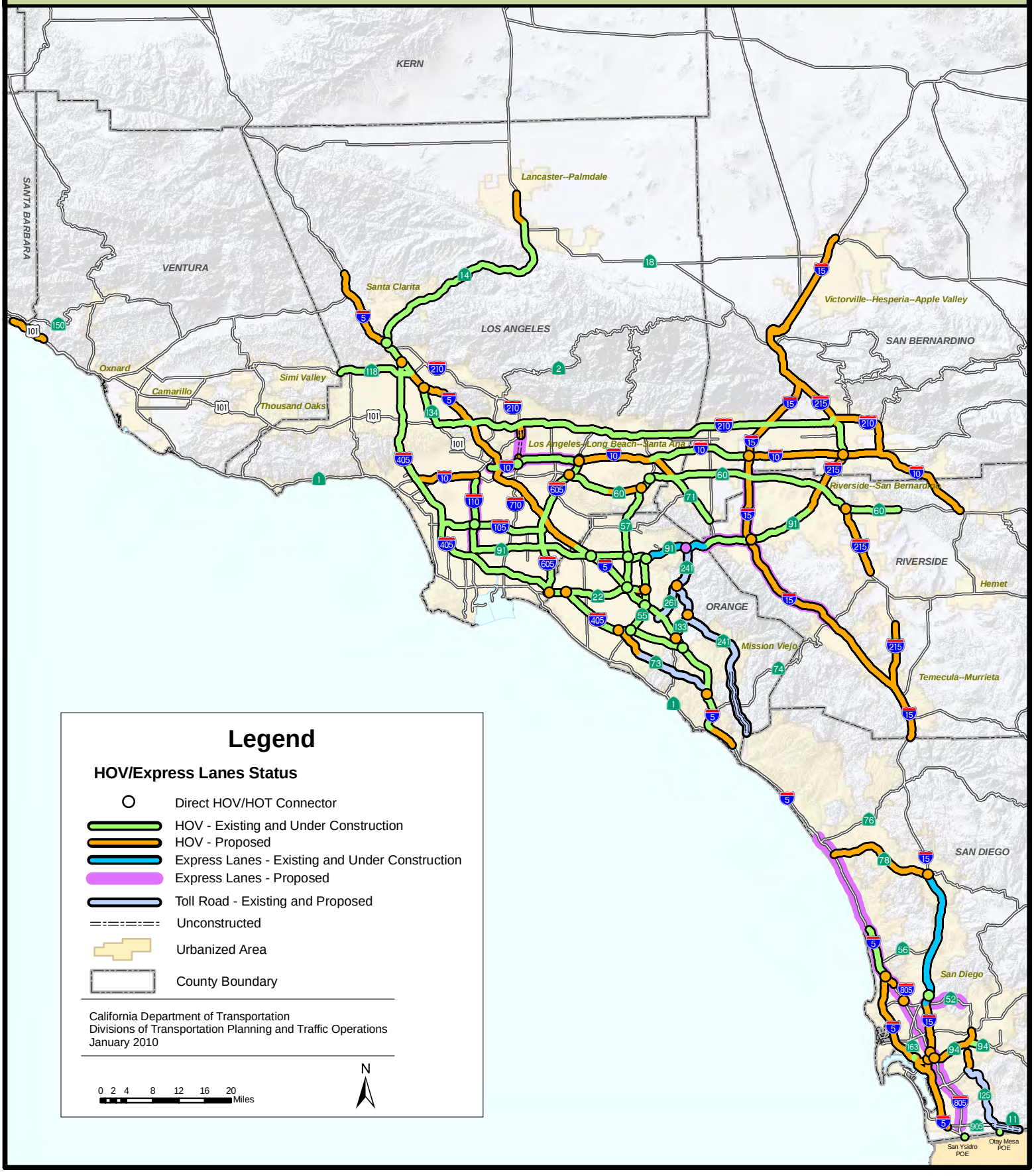
High Occupancy Vehicle Lanes (HOV)/Express Lanes
Southern California Region



Legend

HOV/Express Lanes Status

- Direct HOV/HOT Connector
- HOV - Existing and Under Construction
- HOV - Proposed
- Express Lanes - Existing and Under Construction
- Express Lanes - Proposed
- Toll Road - Existing and Proposed
- Unconstructed
- Urbanized Area
- County Boundary

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0 2 4 8 12 16 20 Miles

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Interregional Transportation Strategic Plan (1998)

The State Transportation Improvement Program (STIP) Guidelines, adopted by the California Transportation Commission (CTC), require Caltrans to develop and keep updated an Interregional Transportation Strategic Plan (ITSP). The ITSP includes a vision, strategies, performance measures, principles and key objectives to guide the investment of the State's Interregional Improvement Program (IIP). These objectives are:

- Completing a trunk system of higher standards (usually expressway/freeway state highways;
- Connecting all urbanized areas, major metropolitan centers, and gateways to the freeway and expressway system to ensure a complete statewide system for the highest volume and most critical trip movements;
- Ensuring a dependable level of service for movement into and through major gateways of statewide significance and ensuring connectivity to key intermodal transfer facilities, seaports, air cargo terminals, and freight distribution facilities;
- Connecting urbanizing centers and high growth areas to the trunk system to ensure future connectivity, mobility, and access for the State's expanding population;
- Linking rural and smaller urban centers to the trunk system; and
- Implementing an intercity passenger rail program toward specified goals.

Overview of the Focus Route Corridors and Challenges

The term "Focus Route" is a phrase specific to the ITSP. The Focus Routes represent the 10 most critical interregional route corridors that are State's highest priority for IIP funding and upgrade to higher facility standards (usually expressway and freeway). Focus Routes are a subset of the High Emphasis Routes. It include all the non-Interstate routes in the High Emphasis category and 21 additional routes or route portions that constitute a major logical transportation corridor.

The main difference in highway facility type is access control.

Freeway *- a divided arterial highway for through traffic with full control of access and with grade separations.*

Expressway *- an arterial highway for through traffic which may have partial control of access, but which may or may not be divided or have grade separations at intersections.*

Conventional highway *means access from adjoining property is not restricted; Where it is restricted, it is either an "expressway" (intersections are not grade-separated) or "freeway" (intersections are grade separated with interchange structures)*

Completing the Focus Route corridors will provide a statewide trunk system for serving higher volume interregional trip movements. These corridors together with the Interstate system form a backbone system for additional capacity and a complete transportation facility for the State.

The Focus Route corridors balance north-south and east-west access and connectivity statewide. North-south route corridors include US 101, State Route (SR) 99, US 395/SR 14, portions of SR 7, SR 111, SR 78, SR 86 and all of SR 905. These route corridors are vital interregional routes extending almost the length of California from Oregon to Mexico. They serve diverse travel demands from a major commute corridor through the urbanized areas, to prime rural recreation and tourist routes along with significant goods movement route for truck travel.

The east-west focus route corridors include SR 58, SR 41/46, SR 152/156, SR 198, SR 20 combined corridor with SR 29/53 and SR 49, and SR 299/44/36. The four east-west routes (and route portions) below Sacramento to Bakersfield (SR 152/156, 198, 41/46 and 58) serve the highest degree of interregional people and goods movement, connectivity, and accessibility. They provide operational flexibility for emergencies across multiple counties from central coast to the valley. SR 20 and SR 299 corridors (and route portions) serve interregional movement of people and goods across the northern Sacramento Valley and provide routing alternatives for emergencies in the north State.

California currently has 55 urbanized areas. Thirty-three out of 55 urbanized areas with a combined population of nearly five million people are currently not served by a State highway completed to freeway and/or expressway standards. Twenty-four of the 33 urbanized areas are directly on the Focus Route corridors and eleven are within a short distance to either a Focus Route corridor or an Interstate system. SR 99 alone has 13 urbanized areas underserved by the lack of a completed freeway. The Focus Routes combined represent less than 20 percent of the State highway miles. However, they carry over 32 billion vehicle miles of travel (VMT) annually and the second largest daily VMT for 5-axle trucks (25%), next to the Interstates (58%). Eighty three percent (83%) of all large truck travel is handled by these two systems. As population and economic growth continues in California, the need for higher facility standards becomes more pressing.

Plan to Meet the Challenge

The route development concept strategy for the Focus Routes corridors includes upgrading over 2,200 lane miles of conventional highways to freeway/expressway standards and constructing over 170 lane miles of new passing and truck climbing lanes over the 20-year period (1998-2020). Since 1998, nearly 600 lane miles (or about 25 percent) have been constructed, including those that are currently under construction. These major system improvements added new capacity and improved the operation of the Focus Route corridors.

A statewide map (Refer to Focus Route Development Strategy Map) demonstrates the progress of completing the Focus Routes including the remaining gaps on the system. The current 2008 State Transportation Improvement Program (STIP) programmed over $4.5 billion of combined state, regional, local, Proposition 1B and Transportation Congestion Relief Program funds for continued improvement on the Focus Routes. This significant investment will add over 320 lane miles of freeway/expressway and about 20 lane miles of passing and truck climbing lanes to the interregional system.

However, given the current economic downturn and funding shortfalls, funding and construction of these programmed improvements could be further delayed or un-programmed in future STIPs. The parallel issue of increasing demand for maintenance and rehabilitation of the aging state highway system would also decrease the available STIP to fund current and future planned improvements on the Focus Routes. A challenge for funding the completion of the Focus Routes is to ensure full regional partnerships with regional improvement program dollars, considering the available county minimums.

Sources:
1998 Interregional Transportation Strategic Plan
http://www.dot.ca.gov/hq/transprog/ocip/te/itsp.pdf
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Focus Route Development Strategy

1998 - 2020
(non-urbanized areas)

Implementation Progress Report of the
1998 Interregional Transportation Strategic Plan (ITSP)

Legend

Funding Status (1998 - 2008 STIP)

- Constructed/Under Construction (Funded)
- Future Completion (Programmed/Planned)
- Focus Route
- Interstate Route
- Urbanized Area

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January 2010

0 10 20 40 60 80 Miles

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